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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,633	06/21/2001	Mark L. Yarkosky	1654	6146

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EXAMINER

FOX, BRYAN J

ART UNIT PAPER NUMBER

2686

*[Handwritten signature]*

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/886,633

**Applicant(s)**

YARKOSKY ET AL.

**Examiner**

Bryan J Fox

**Art Unit**

2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US006385435B1) in view of Kim (US20010046215A1) and further in view of Trompower et al.

Regarding claim 1, Lee discloses a repeater system where the repeater receives an input signal, amplifies it and retransmits it (see column 4, lines 64-65). This may be done to boost coverage in a "shadow area" within the geographical area serviced by a base station (see column 1, lines 15-27). Lee fails to specifically point out that the pilot signal is being retransmitted.

Kim discloses the use of a repeater to retransmit pilot signals (see page 5, paragraph 46).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Lee to include the above retransmission of a pilot signal disclosed by Kim in order to increase the area of coverage of a base station.

The combination of Lee and Kim suggests the use of a directional receiving antenna in figure 4 of Lee, however, the use of a directional antenna is not specifically pointed out.

Trompower et al. clearly discloses the use of a directional receiving antenna (see column 9, lines 16-24 and figure 2).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee and Kim to include the above directional antenna disclosed by Trompower et al. in order to take advantage of the benefits of a directional antenna such as higher gain in the desired direction.

Regarding claim 2, the directional antenna must be aligned to receive the pilot signal from the base station as claimed or the repeater would not function properly. Also, as can be seen in figure 2, the repeated signal is received from the cell site antenna, or base station.

Regarding claim 4, Lee discloses a repeater system that amplifies and retransmits an input signal (see column 4, lines 64-65 and figure 6). As can be seen in figure 6, the input antenna receives a signal and outputs it to an amplifier 602 and the

amplifier inputs the amplified signal to an output antenna 603. Lee fails to specifically point out that a pilot signal will be retransmitted.

Kim discloses the use of a repeater to retransmit pilot signals (see page 5, paragraph 46).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Lee to include the above retransmission of a pilot signal disclosed by Kim in order to increase the area of coverage of a base station.

The combination of Lee and Kim suggests the use of a directional receiving antenna in figure 4 of Lee, however, the use of a directional antenna is not specifically pointed out.

Trompower et al. clearly discloses the use of a directional receiving antenna (see column 9, lines 16-24 and figure 2).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee and Kim to include the above directional antenna disclosed by Trompower et al. in order to take advantage of the benefits of a directional antenna such as higher gain in the desired direction.

Regarding claim 5, the directional antenna disclosed in the combination of Lee, Kim and Trompower is a Yagi antenna (see column 9, lines 16-24).

Claims 7-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Kim in view of Trompower et al, and further in view of Leslie et al. (US006404775B1).

Regarding claim 7, Lee discloses a repeater system where a signal is received, amplified and retransmitted (see column 4, lines 64-65). As can be seen in figure 4, the signal is received from a cell site antenna, which reads on the claimed base station. Lee fails to specifically point out that a pilot signal will be retransmitted.

Kim discloses the use of a repeater to retransmit pilot signals (see page 5, paragraph 46).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Lee to include the above retransmission of a pilot signal disclosed by Kim in order to increase the area of coverage of a base station.

The combination of Lee and Kim suggests the use of a directional receiving antenna in figure 4 of Lee, however, the use of a directional antenna is not specifically pointed out.

Trompower et al. clearly discloses the use of a directional receiving antenna (see column 9, lines 16-24 and figure 2).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee and Kim to include the above directional antenna disclosed by Trompower et al. in order to take advantage of the benefits of a directional antenna such as higher gain in the desired direction.

The combination of Lee, Kim and Trompower fails to teach the use of a directional antenna for transmitting the repeated signal.

Leslie et al. discloses a repeater system where the repeater uses directional antennas to divide the repeater area into several sectors (see column 10, lines 10-16), which reads on the claimed directional transmitting antenna.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee, Kim and Trompower et al. with Leslie et al. to include the above directional repeater antenna in order to better a sector served by the repeater.

Regarding claim 8, the above combination of Lee, Kim, Trompower et al. and Leslie et al. includes directional receiving antennas (see Trompower et al. column 9, lines 16-24 and figure 2). These directional receiving antennas in Trompower et al, figure 2 must be aligned with the base station or the repeater will not receive a signal or function properly.

Regarding claim 9, the directional transmitting antenna disclosed by the combination of Lee, Kim, Trompower et al. and Leslie et al. would need to be aligned in the selected area that the signal is desired to be transmitted or the system will not function properly (see Trompower et al. the directional antenna 292 in figure 2). By aligning the antenna such that the signal is transmitted in the selected second geographical area, the signal strength is lowered in the first geographical area because the antenna is not focused in that area.

Regarding claim 11, Lee discloses a repeater system where a signal is received, amplified and retransmitted (see column 4, lines 64-65 and figure 6). A receiving antenna receives a signal from a cell site antenna (see figure 4), which reads on the

claimed receiving antenna for receiving a signal from a selected base station. The amplifier shown in figure 6 has both an input and an output as claimed and as it is used to amplify signals received from the input antenna transmitted by the output antenna, which reads on the claimed "radio-frequency amplifier". Lee fails to specifically point out that a pilot signal will be retransmitted.

Kim discloses the use of a repeater to retransmit pilot signals (see page 5, paragraph 46).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Lee to include the above retransmission of a pilot signal disclosed by Kim in order to increase the area of coverage of a base station.

The combination of Lee and Kim suggests the use of a directional receiving antenna in figure 4 of Lee, however, the use of a directional antenna is not specifically pointed out.

Trompower et al. clearly discloses the use of a directional receiving antenna (see column 9, lines 16-24 and figure 2).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee and Kim to include the above directional antenna disclosed by Trompower et al. in order to take advantage of the benefits of a directional antenna such as higher gain in the desired direction.

The combination of Lee, Kim and Trompower fails to teach the use of a directional antenna for transmitting the repeated signal.



Leslie et al. discloses a repeater system where the repeater uses directional antennas to divide the repeater area into several sectors (see column 10, lines 10-16), which reads on the claimed directional transmitting antenna.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee, Kim and Trompower et al. with Leslie et al. to include the above directional repeater antenna in order to better a sector served by the repeater.

Regarding claim 12, the directional antenna disclosed in the combination of Lee, Kim, Trompower et al. and Leslie et al. is a Yagi antenna (see Trompower column 9, lines 16-24).

Regarding claim 13, the combination of Lee, Kim, Trompower et al. and Leslie et al. discloses the use of a directional Yagi antenna to receive a signal from the base station (see Trompower et al. column 9, lines 64 – column 10, line 16 and figure 2). While it is not specifically disclosed that a Yagi antenna could be used to transmit the pilot signal as claimed, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use a directional antenna when a specific coverage area is desired as suggested in figure 1 of Lee in order to take advantage of the benefits of a Yagi antenna such as increased gain.

Claims 3, 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Kim and Trompower et al. and further in view of Sabat, Jr. et al. (US20020016170A1).

Regarding claims 3 and 6, the combination of Lee, Kim and Trompower et al. fails to teach the use of a surface acoustic wave device.

Sabat, Jr. et al. disclose the use of a SAW filter and amplifier (see page 7, paragraph 74).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee, Kim and Trompower et al. to include the SAW filter and amplifier disclosed by Sabat Jr. et al. in order to take advantage of the sharp filtering operation of the saw filter as suggested by Sabat Jr. et al. in page 7, paragraph 74.

Regarding claim 15, Lee discloses repeater system that receives a signal, amplifies the signal and retransmits the signal (see column 4, lines 64-65 and figure 6). Lee fails to specifically point out that the signal is a pilot signal.

Kim discloses the use of a repeater to retransmit pilot signals (see page 5, paragraph 46).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Lee to include the above retransmission of a pilot signal disclosed by Kim in order to increase the area of coverage of a base station.

The combination of Lee and Kim suggests the use of a directional receiving antenna in figure 4 of Lee, however, the use of a directional antenna is not specifically pointed out.

Trompower et al. clearly discloses the use of a directional receiving antenna (see column 9, lines 16-24 and figure 2). This directional antenna must be aligned with the desired signal to be received or the system will not function properly.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee and Kim to include the above directional antenna disclosed by Trompower et al. in order to take advantage of the benefits of a directional antenna such as higher gain in the desired direction.

The combination of Lee, Kim and Trompower et al. fails to teach the use of a surface acoustic wave device.

Sabat, Jr. et al. disclose the use of a SAW filter and amplifier (see page 7, paragraph 74).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee, Kim and Trompower et al. to include the SAW filter and amplifier disclosed by Sabat Jr. et al. in order to take advantage of the sharp filtering operation of the saw filter as suggested by Sabat Jr. et al. in page 7, paragraph 74.

Claims 10, 14, 16, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Kim, Trompower et al. and Leslie et al. and further in view of Sabat Jr. et al.

Regarding claims 10 and 14, the combination of Lee, Kim, Trompower et al. and Leslie et al. fails to teach the use of a surface acoustic wave device.

Sabat, Jr. et al. disclose the use of a SAW filter and amplifier (see page 7, paragraph 74).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee, Kim and Trompower et al. to include the SAW filter and amplifier disclosed by Sabat Jr. et al. in order to take advantage of the sharp filtering operation of the saw filter as suggested by Sabat Jr. et al. in page 7, paragraph 74.

Regarding claim 16, Lee discloses a repeater system where a signal received by the repeater antenna is amplified and retransmitted to the desired geographical area (see column 4, lines 64-65 and figures 2 and 6). Lee fails to specifically point out that the signal is a pilot signal.

Kim discloses the use of a repeater to retransmit pilot signals (see page 5, paragraph 46).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Lee to include the above retransmission of a pilot signal disclosed by Kim in order to increase the area of coverage of a base station.

The combination of Lee and Kim fails to teach the use of a surface acoustic wave device.

Sabat, Jr. et al. disclose the use of a SAW filter and amplifier (see page 7, paragraph 74).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee and Kim to include the SAW filter and

amplifier disclosed by Sabat Jr. et al. in order to take advantage of the sharp filtering operation of the saw filter as suggested by Sabat Jr. et al. in page 7, paragraph 74.

The combination of Lee, Kim and Sabat Jr. et al. fails to teach the use of a Yagi receiving antenna.

Trompower discloses a repeater system the specifically points out the possibility of using a Yagi antenna in 290 (see column 9, lines 19-22) for the reception of the signal from a base station.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee, Kim and Sabat jr. et al. to include the Yagi antenna disclosed by Trompower et al. in order to benefit from the advantages of a Yagi antenna such as higher gain.

Regarding claim 17, Lee discloses a repeater system that receives a signal, amplifies the signal and retransmits the signal (see column 4, lines 64-65 and figure 6). Lee fails to specifically point out that the signal is a pilot signal.

Kim discloses the use of a repeater to retransmit pilot signals (see page 5, paragraph 46).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Lee to include the above retransmission of a pilot signal disclosed by Kim in order to increase the area of coverage of a base station.

The combination of Lee and Kim suggests the use of a directional receiving antenna in figure 4 of Lee, however, the use of a directional antenna is not specifically pointed out.

Trompower et al. clearly discloses the use of a directional receiving antenna (see column 9, lines 16-24 and figure 2). The directional antenna must be aligned with the signal desired or the system will not function properly.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee and Kim to include the above directional antenna disclosed by Trompower et al. in order to take advantage of the benefits of a directional antenna such as higher gain in the desired direction.

The combination of Lee, Kim and Trompower fails to teach the use of a directional antenna for transmitting the repeated signal.

Leslie et al. discloses a repeater system where the repeater uses directional antennas to divide the repeater area into several sectors (see column 10, lines 10-16), which reads on the claimed directional transmitting antenna.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee, Kim and Trompower et al. with Leslie et al. to include the above directional repeater antenna in order to better a sector served by the repeater.

The combination of Lee, Kim, Trompower et al. and Leslie et al. fails to teach the use of a surface acoustic wave device.

Sabat, Jr. et al. disclose the use of a SAW filter and amplifier (see page 7, paragraph 74).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee, Kim and Trompower et al. to include the

SAW filter and amplifier disclosed by Sabat Jr. et al. in order to take advantage of the sharp filtering operation of the saw filter as suggested by Sabat Jr. et al. in page 7, paragraph 74.

Regarding claim 18, Lee discloses a repeater system where a signal received by the repeater antenna is amplified and retransmitted to the desired geographical area (see column 4, lines 64-65 and figures 2 and 6). Lee fails to specifically point out that the signal is a pilot signal.

Kim discloses the use of a repeater to retransmit pilot signals (see page 5, paragraph 46).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Lee to include the above retransmission of a pilot signal disclosed by Kim in order to increase the area of coverage of a base station.

The combination of Lee and Kim fails to teach the use of a surface acoustic wave device.

Sabat, Jr. et al. disclose the use of a SAW filter and amplifier (see page 7, paragraph 74).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee and Kim to include the SAW filter and amplifier disclosed by Sabat Jr. et al. in order to take advantage of the sharp filtering operation of the saw filter as suggested by Sabat Jr. et al. in page 7, paragraph 74.

The combination of Lee, Kim and Sabat Jr. et al. fails to teach the use of a Yagi receiving antenna.

Trompower discloses a repeater system the specifically points out the possibility of using a Yagi antenna in 290 (see column 9, lines 19-22) for the reception of the signal from a base station.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee, Kim and Sabat Jr. et al. to include the Yagi antenna disclosed by Trompower et al. in order to benefit from the advantages of a Yagi antenna such as higher gain.

The combination of Lee, Kim, Trompower et al. and Sabat Jr. et al. fails to teach the use of a directional antenna for transmitting the repeated signal.

Leslie et al. discloses a repeater system where the repeater uses directional antennas to divide the repeater area into several sectors (see column 10, lines 10-16), which reads on the claimed directional transmitting antenna.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Lee, Kim and Trompower et al. with Leslie et al. to include the above directional repeater antenna in order to better serve a sector served by the repeater. Furthermore, it would have been obvious to make that directional antenna a Yagi antenna as the directional antenna in Trompower et al. is in order to benefit from the advantages of a Yagi antenna such as higher gain.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bi et al. (US005835848A) discloses a range repeater for a transmission system.



Yenerim (US006690916B1) discloses a radio network for radio communication in an enclosed environment and a repeater for such a radio network.

Salonaho et al. (US006317600B1) discloses a method for load control and radio system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan J Fox whose telephone number is (703) 305-8994. The examiner can normally be reached on Monday through Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (703) 305-4379. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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